

TRAILING ARM SUSPENSION WITH OPTIMIZED I-BEAM

ABSTRACT OF THE DISCLOSURE

A suspension system for suspending a vehicle frame above a plurality of ground-engaging wheels includes a wheel-carrying axle comprising a first end a second end, and a pair of frame bracket assemblies each comprising a resiliently-bushed pivotable connection defining a pivot axis, wherein the frame bracket assemblies are operably coupled to opposite sides of the frame bracket, and wherein the resiliently-bushed pivotable connection comprises a substantially cylindrically-shaped bushing. The suspension system also includes a pair of trailing arms each comprising a first end operably coupled to the first end and the second end of the axle, respectively, and a second end comprising an aperture that receives the bushing of one of the frame bracket assemblies therein, wherein the aperture of the second end of each trailing arm is nonsymmetrical, thereby causing a nonsymmetrical compression of the bushing about the pivot axis. The suspension system also includes embodiments wherein the aperture of the second end of each trailing arm is nonuniform, thereby reducing rotation of the bushing with respect to the trailing arm, wherein a mating surface of each trailing arm operably coupled to the first and second end of the axle comprise a cavity, thereby reducing a localized stress transferred from the trailing arm to the axle, wherein the second end of each trailing arm further comprises a lip extending radially outward from the aperture and at least one engagement surface extending radially outward from the lip and adapted to abut a bushing-removal tool, as well as other improvements.